

**SAFETY SUPPLEMENT**

## TECHNICAL MANUAL

**AEROSPACE EMERGENCY RESCUE  
AND MISHAP RESPONSE INFORMATION  
(EMERGENCY SERVICES)**

THIS PUBLICATION SUPPLEMENTS TO 00-105E-9 REVISION 8, DATED 30 SEPTEMBER 2002, LOCATED AT WEB SITE:<http://www.robins.af.mil/logistics/LGEDA/Documents/to00-105e-9.htm>.

DISTRIBUTION STATEMENT - Approved for public release; distribution unlimited.

**COMMANDERS ARE RESPONSIBLE FOR BRINGING THIS SUPPLEMENT  
TO THE ATTENTION OF ALL AFFECTED AIR FORCE PERSONNEL.**

PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE

**24 November 2003****1. PURPOSE.**

This supplement provides instructions for update of TO 00-105E-9 Revision 8, dated 30 September 2002, affecting Chapter 8 USAF Fighter Aircraft. This update adds new information regarding the F/A-22 procedures with information regarding associated hazards provided by the SPO. **This supplement supersedes SS-5 dated 27 August 2003.**

**2. INSTRUCTIONS.**

- a. This information, if it applies to your operation, can be downloaded and printed from this web site by the end user. Use the most current Adobe Reader for this function. This software is free and can be downloaded from Adobe.com at their web site. PDF files should be downloaded with the Reader running on your PC to reduce download time.
- b. This supplement to Chapter 8 adds information based on newly provided source data information regarding the F/A-22. This updated file addresses dimensions, hazards, new airframe materials distribution, and the re-institution of arm restraints to be used on production models. The new update should be added to Chapter 8 in TO 00-105E-9 Revision 8. The end user should save this file and print the affected pages, if applicable to the user's operation. File a copy of this Safety Supplement with the main Technical Order according to current regulations.

**NOTE**

The operational user file is the whole or selected printed pages from the web site placed in a binder used for local, transient operations or both. This information should also be included in mobility boxes where applicable. If your unit or a part of your unit is serving elsewhere, they should be informed of this Safety Supplement and how to obtain it. See TO 00-5-2 paragraphs 1-1.4, 1-1.4.1, and 1-1.6 for Local Reproduction of TOs and Digital Media guidance.

THE END

## AIRCRAFT PAINT SCHEME

F/A-22A

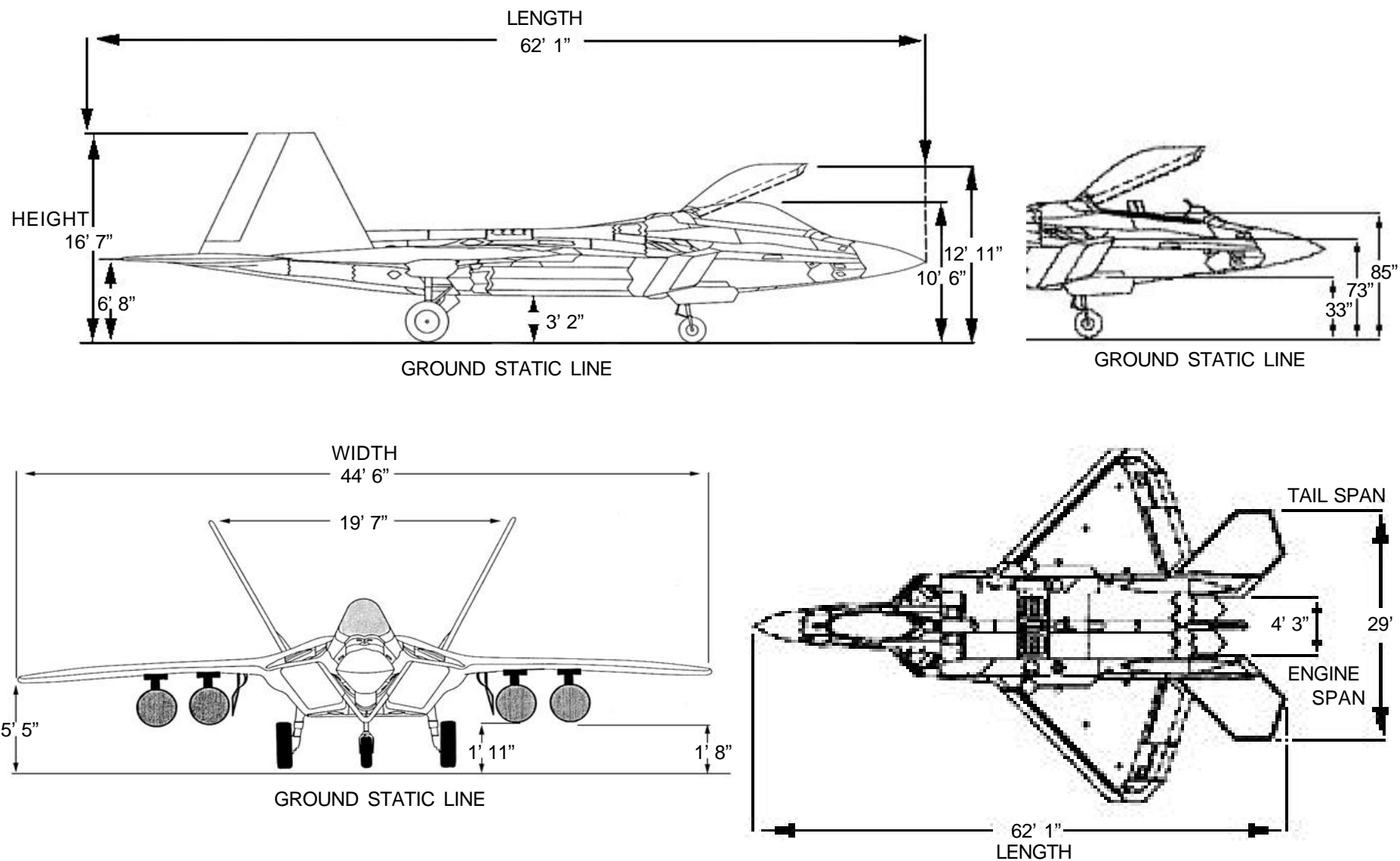


# AIRCRAFT DIMENSIONS

F/A-22A

## NOTE:

Height dimensions are typical for an aircraft fully serviced and with internal fuel.



# AIRCRAFT HAZARDS

## INLET, EXHAUST AND RADAR HAZARDS

### WARNING

Personnel should use extreme caution when approaching the inlet area when engines are operating. Maintain a safe zone perpendicular to and forward of the inlets instead of determining a 45 degree arc. Failure to maintain or be aware of the 25 foot arc could cause injury or death to personnel. Loose clothing and no hat zone extends to 200 feet.

### WARNING

Personnel should use extreme caution when approaching the exhaust area which encompasses an arc of 250 feet aft of the engine nozzles.

### WARNING

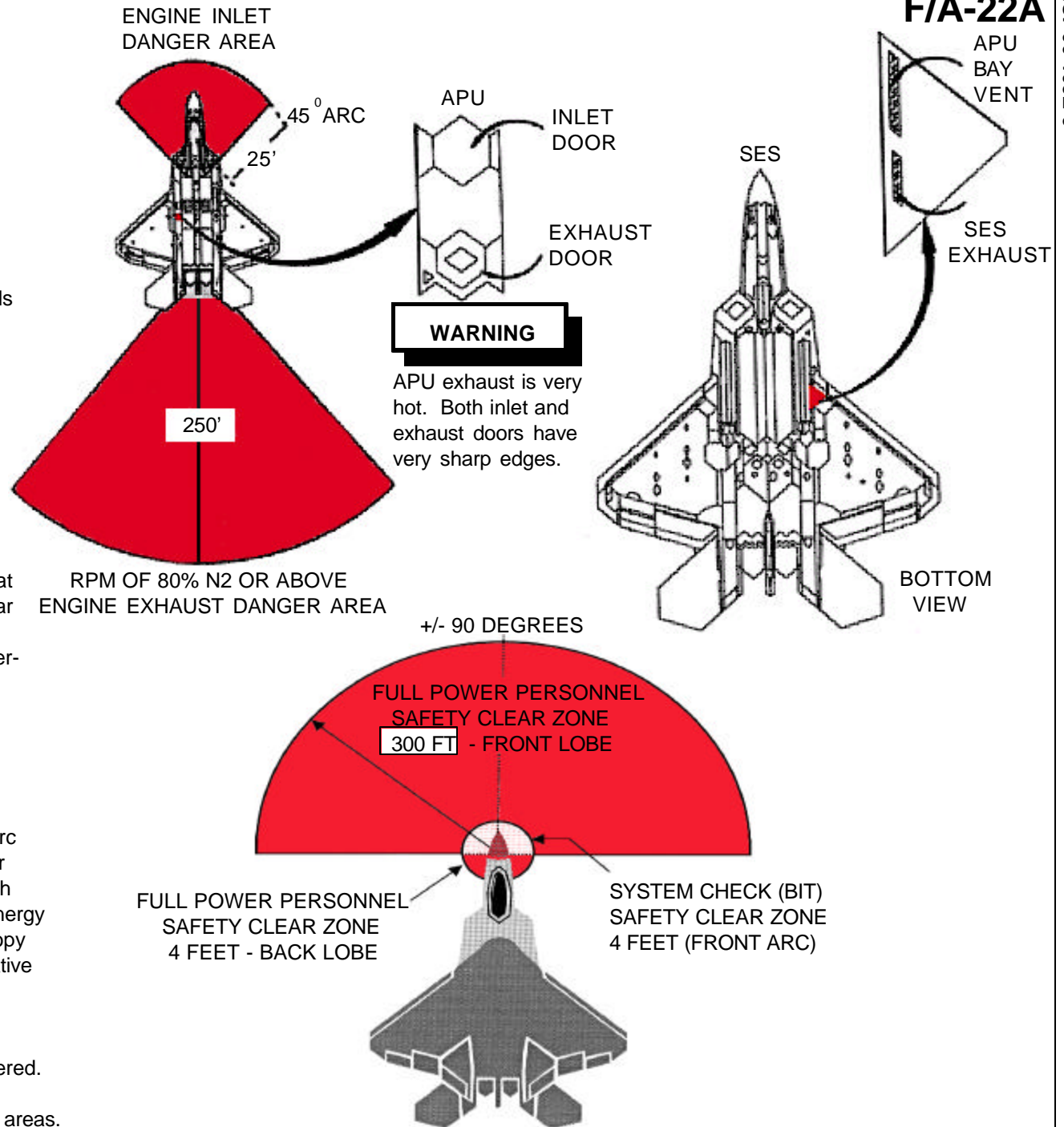
SES (Stored Energy System) exhaust is located at the left lower wing root above the main landing gear doors. This exhaust is extremely hot during APU starts or when the SES is activated during an emergency.

### WARNING

Low power radar emissions may be encountered during an emergency. The danger area for these emissions is a 4 foot back arc and a 4 foot front arc for the system check area. The actual high power and scan radiation area is 300 feet. Approach with extreme caution as if the radar is operating. RF energy can cause accidental firing of ejection seats, canopy and ignition of fuel vapors. Distances are conservative personnel exposure limitations.

#### NOTES:

- ECM emissions are not expected to be encountered.
- A clear zone means for personnel to avoid these areas.





# AIRCRAFT HAZARDS-Continued

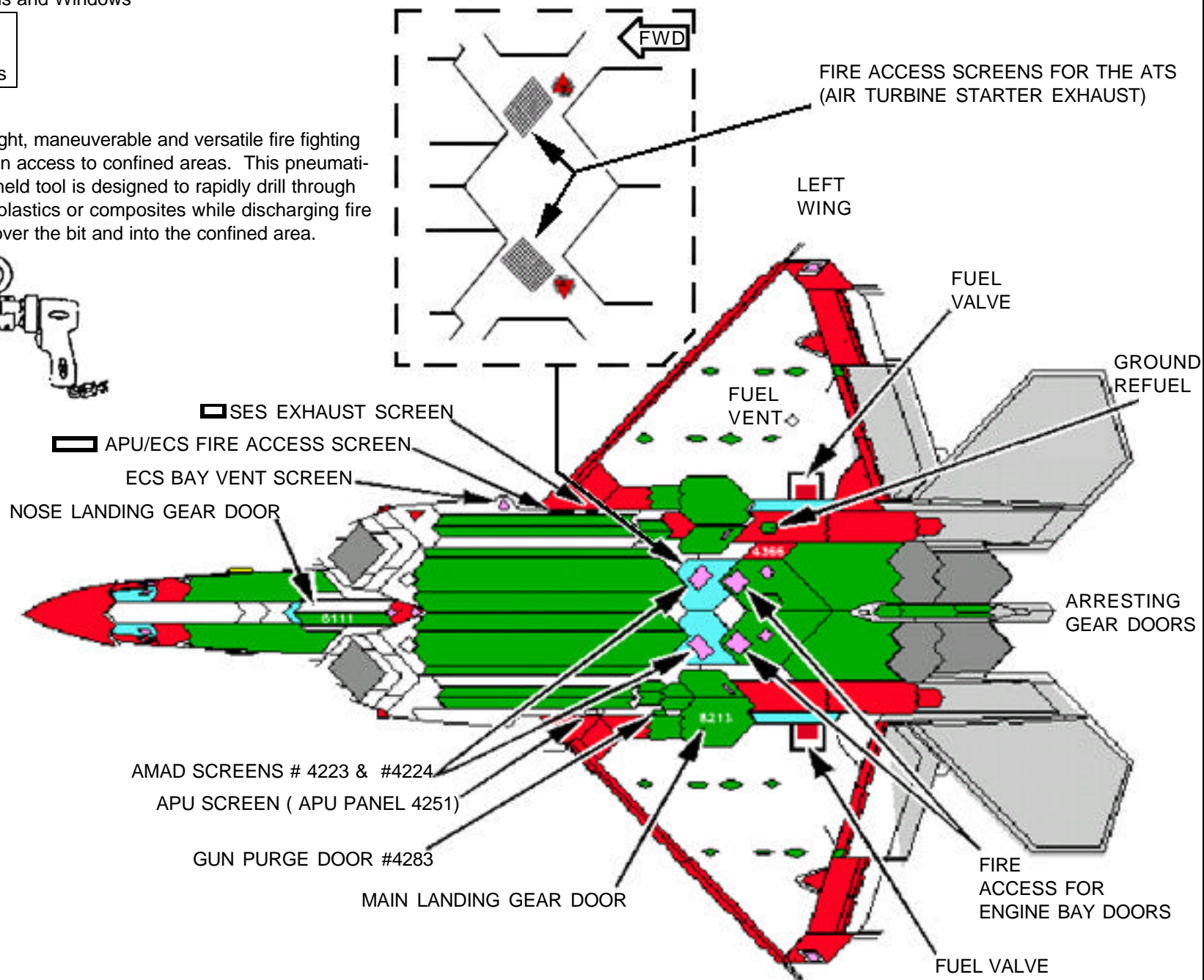
F/A-22A

Bottom View for Screens and Windows



## NOTE:

The Fire Drill II is a light, maneuverable and versatile fire fighting tool developed to gain access to confined areas. This pneumatically powered hand held tool is designed to rapidly drill through aluminum, titanium, plastics or composites while discharging fire extinguishing agent over the bit and into the confined area.



# AIRCRAFT HAZARDS-Continued

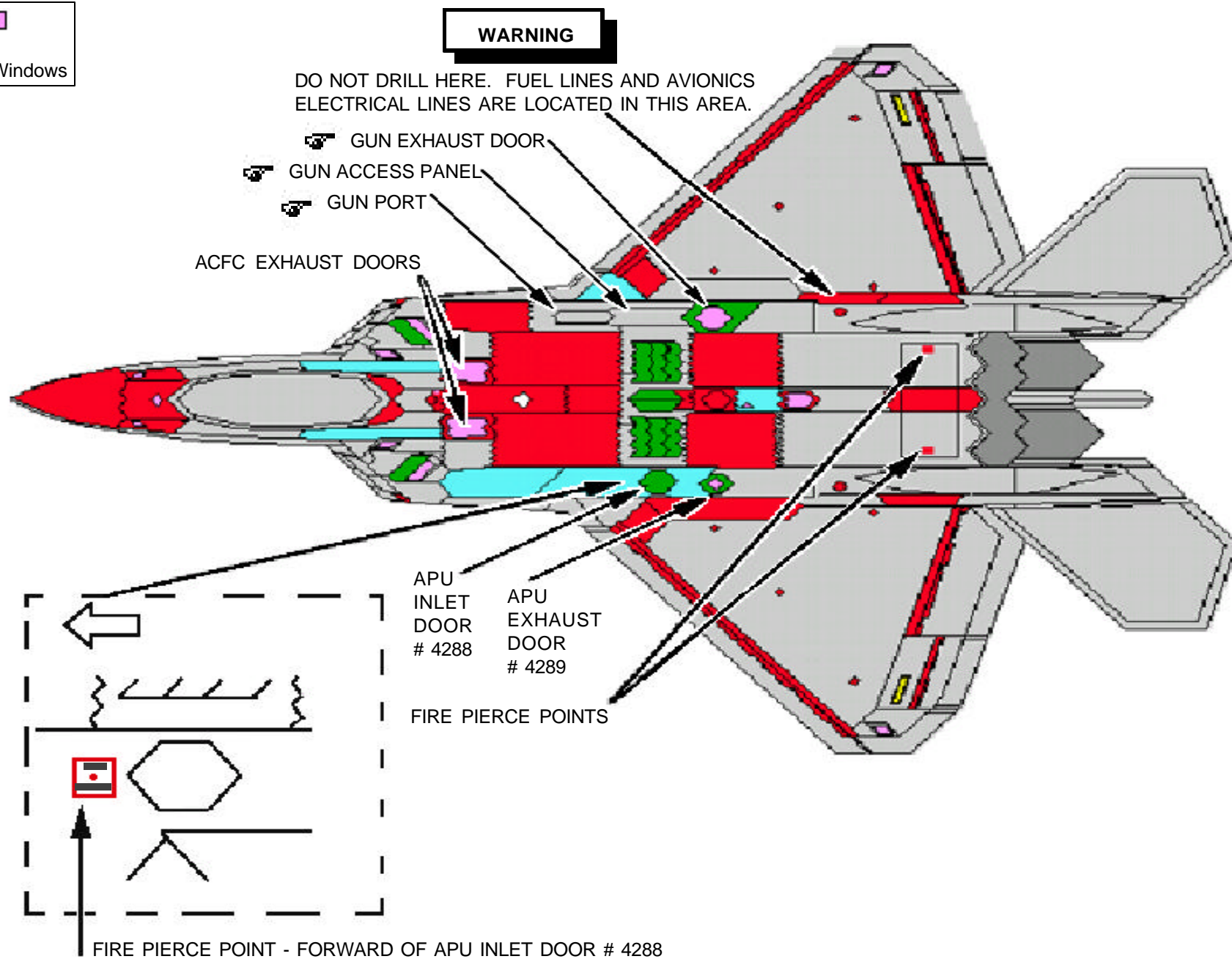
F/A-22A

Top View for Screens and Windows

LEGEND



Screens and Windows



## AIRCRAFT HAZARDS - Continued

HOT BRAKES, CANOPY JETTISON AND SEAT EJECTION TRAJECTORY

### WARNING

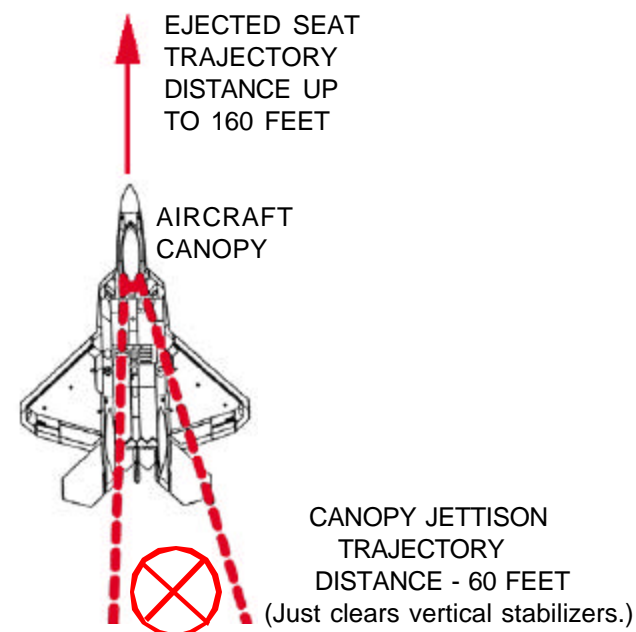
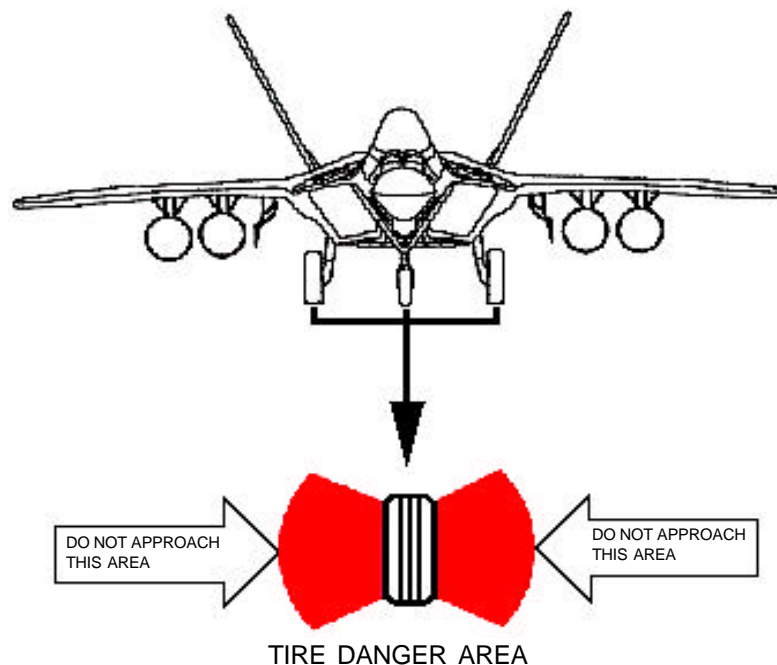
The dangers associated with hot brakes are the same as those associated with any other aircraft and should be approached and treated the same. The approach should be fore and aft, not from the side and this in itself presents hazards from the engine inlets and exhaust. Rescue crews should remember that heat build up in the wheels/brakes will occur after the aircraft has stopped taxiing. The aircraft should be parked and chock main landing gear only with the brakes off. **DO NOT CHOCK NOSE GEAR.** A 45 minute waiting period should be observed. The danger area depicted is the flying shrapnel/debris area, should the wheels/brakes explode.

### WARNING

The ARFF/crash/rescue crew should be aware of the jettison trajectory area of the canopy when positioning firefighting equipment/vehicles and personnel when approaching a disabled aircraft, particularly if canopy jettisoning is anticipated by the crewmember or rescue crew. Danger area is directly aft and to the right of the aircraft centerline. Wind conditions affect the impact area and should be avoided. Injury or death to personnel will occur if danger area is entered during canopy jettisoning.

### WARNING

An additional danger to canopy jettison is if the crew member selects a zero-zero seat ejection. The seat impact area will be forward of the aircraft up to 160 feet depending on wind conditions.



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# AIRCRAFT HAZARDS-Continued

## MOVABLE SURFACES DANGER AREAS

### WARNING

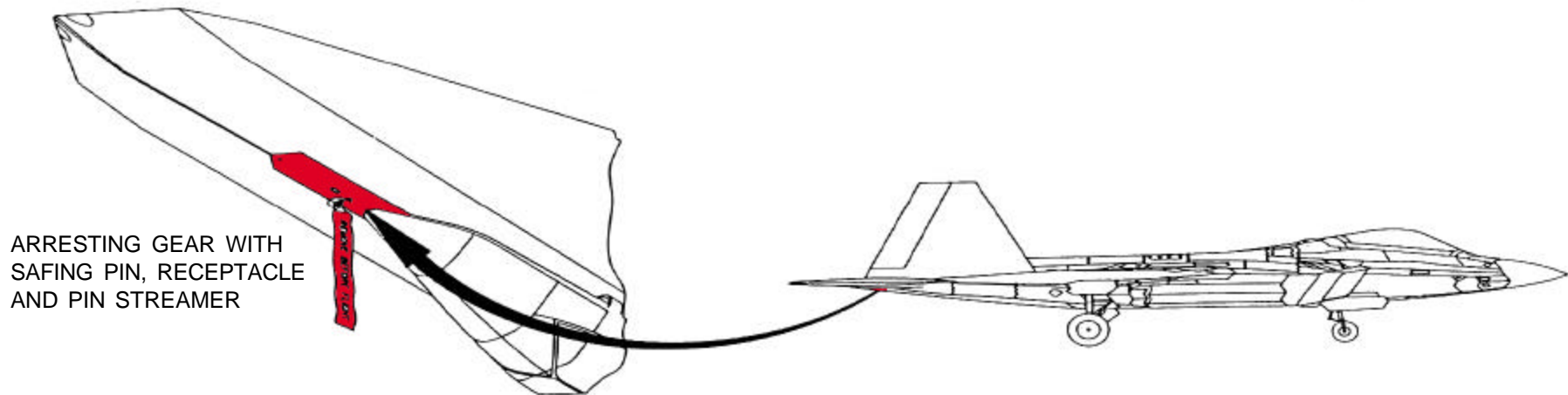
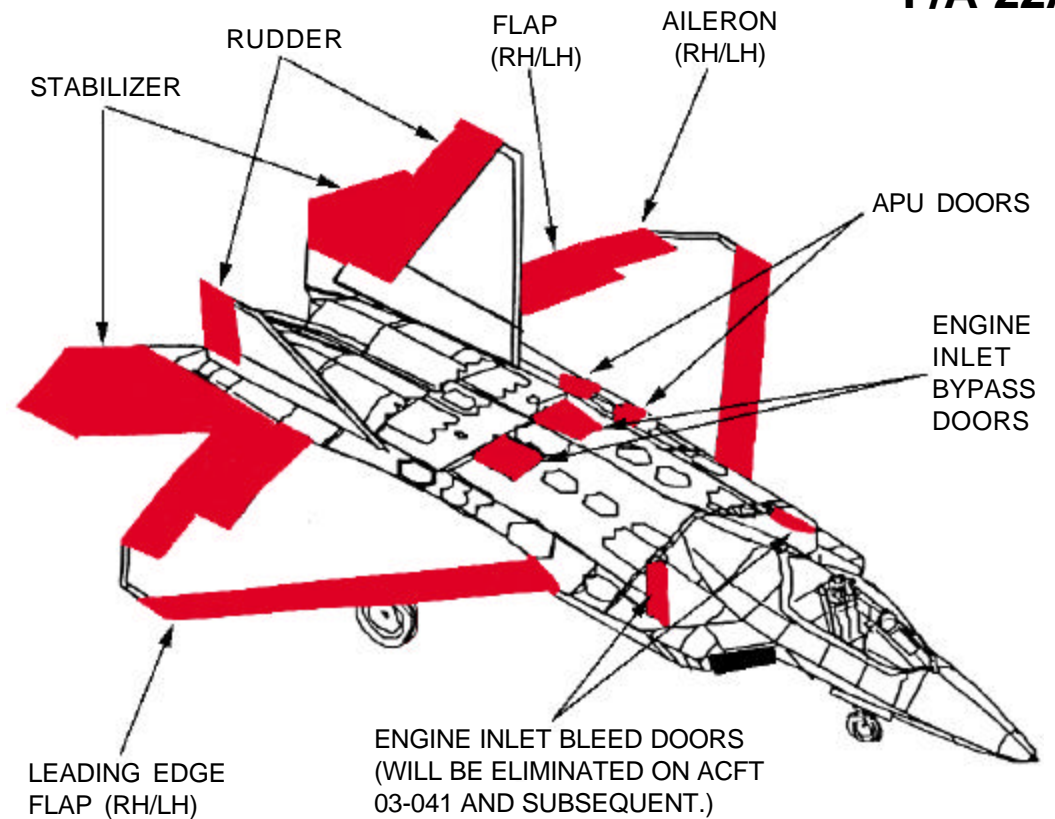
Personnel should stay clear of flight control surfaces when possible with the engines or APU running or external power and hydraulics applied. Danger areas are hi-lited with the rudders posing the least hazard. Failure to disregard danger areas can result in Injury or death.

### WARNING

The arresting gear is located far centerline aft of the shoe hook. It is pneumatically extended and hydraulically retracted. Injury or death to personnel can occur during pneumatic operation.

### WARNING

The safing pin prevents the cable movement required to actuate the arresting gear to extend. Personnel should stay clear of Arresting Gear at all times. Injury or death to personnel can occur if the hook safing mechanism fails.


**F/A-22A**



# AIRCRAFT HAZARDS-Continued

## 1. WEAPONS STORAGE AND LOCATIONS

### NOTE:

Weapons information is discussed on this page and the next.

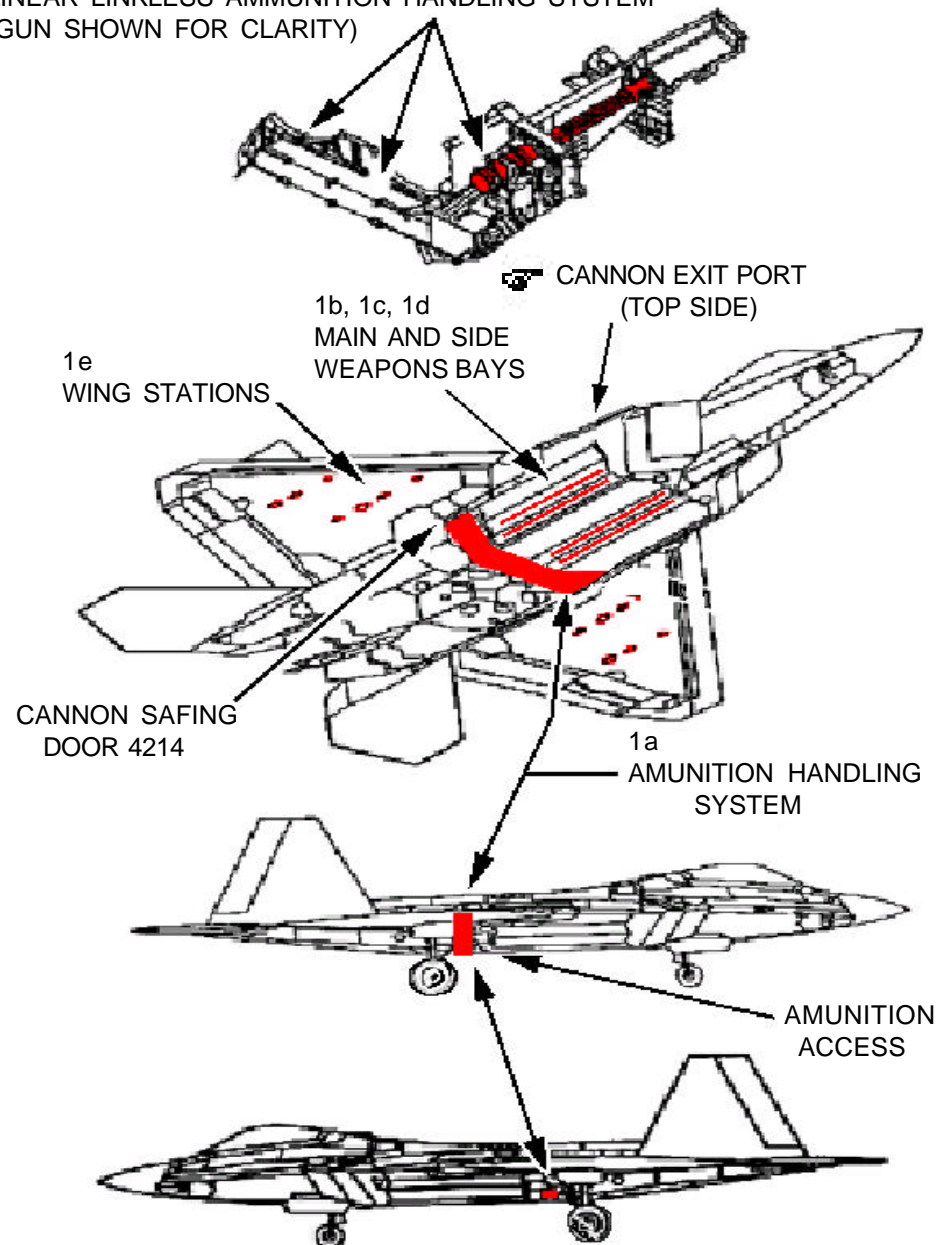
- a. Ammunition storage for the M61A2 20mm multibarrel cannon Linear Linkless system located immediately forward of the right main landing gear door and across the belly of aircraft. Storage system is an overlapping conveyor belt design holding 480 rounds.
- b. Air-to Air: AIM-9M/X Sidewinder (1 per side weapons bay on LAU).
- c. Air-to-Air: AIM-120C AMRAAM, 3 per bay - total of 6.
- d. Air-to Ground: 2 GBU-32 1,000 lb. JDAM (Joint Direct Attack Munition) PGMs on BRU-46 bomb racks.
- e. External carriage of 600 gal fuel tanks, AIM-9 and AIM-120 missiles.

### NOTE:

T.O. 1F/A-22A-1 will contain authorized aircraft configurations.

1a

LINEAR LINKLESS AMMUNITION HANDLING SYSTEM  
(GUN SHOWN FOR CLARITY)



F/A-22A

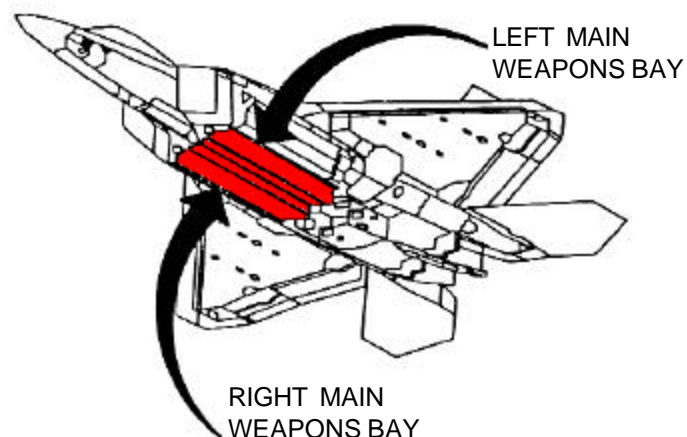
# AIRCRAFT HAZARDS-Continued

## AIRCRAFT WEAPONS/ BAY LOCATIONS AND COUNTERMEASURES TYPES/DOORS

F/A-22A

### NOTE:

Two evident hazards associated with the weapons bay doors are sharp edges and inadvertent opening and closing. The internal weapons loaded are: up to 6 AIM-120 missiles and AIM-9 missiles. Missile launchers are safed by PUSH/PULL handles located on each launcher. All bay doors pictured are closed.

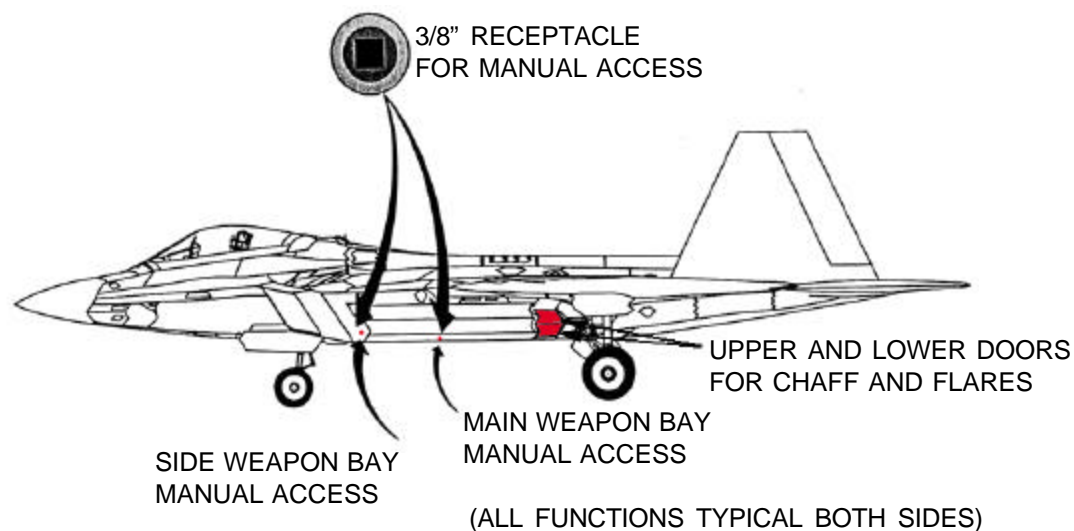
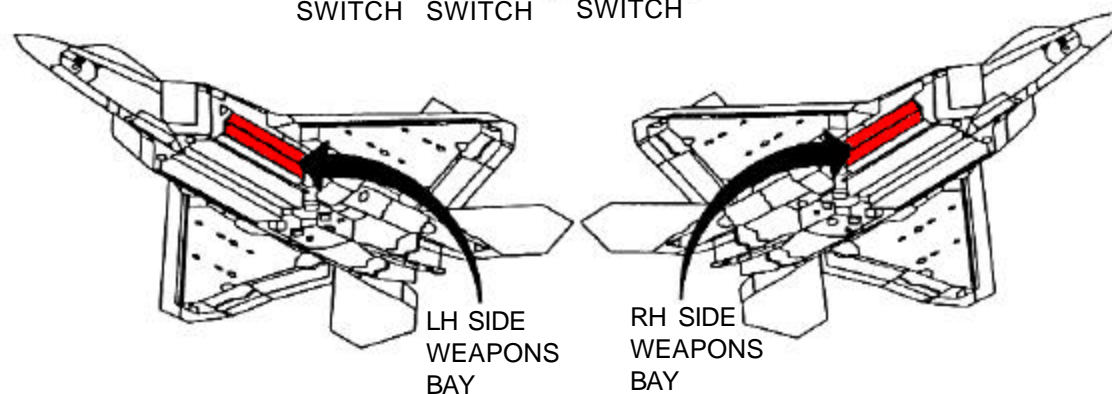
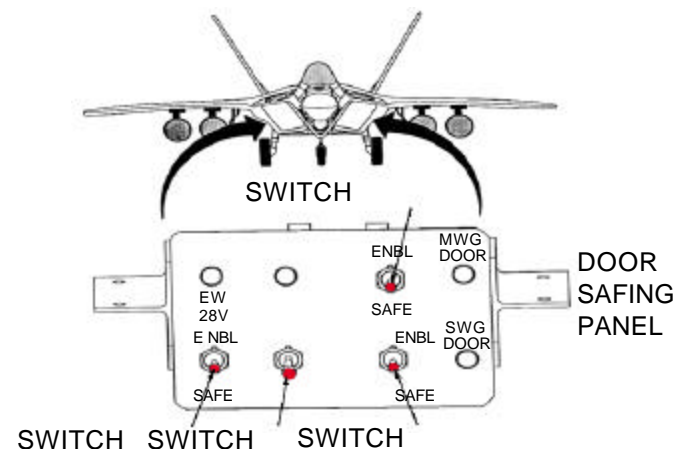


### NOTE:

The Countermeasures Doors are located on each side of the aircraft between the landing gear doors and weapons bays doors. The doors provide for accessing and dispensing chaff and flares. The doors are opened on the ground utilizing the Portable Maintenance Aid when electrical and hydraulic power is available. Door Safing Switches are located in the Main Landing Gear Wheel Well on each respective side of the aircraft.

### WARNING

Chaff and flares present an explosive hazard. Personnel should exercise extreme caution to prevent injury or death.



# AIRCRAFT HAZARDS-Continued

## FUEL STORAGE, OTHER FLUIDS, BATTERY DISCONNECT AND STORED ENERGY SYSTEM

ITEM	TYPE	APPROX. TOTAL QUANTITY
MAIN FUEL TANKS	JP-8	5000 TO 8000 LBS (733 - 1,173 GALS)
APU	JP-8	5 GALS
HYDRUALIC FLUID	MIL-H-83282	35 GALS
BATTERIES	SULFURIC ACID GEL	10 LBS
ENGINE OIL LUBE	MIL-L-7808 OR 23699	6 GALS

### NOTE:

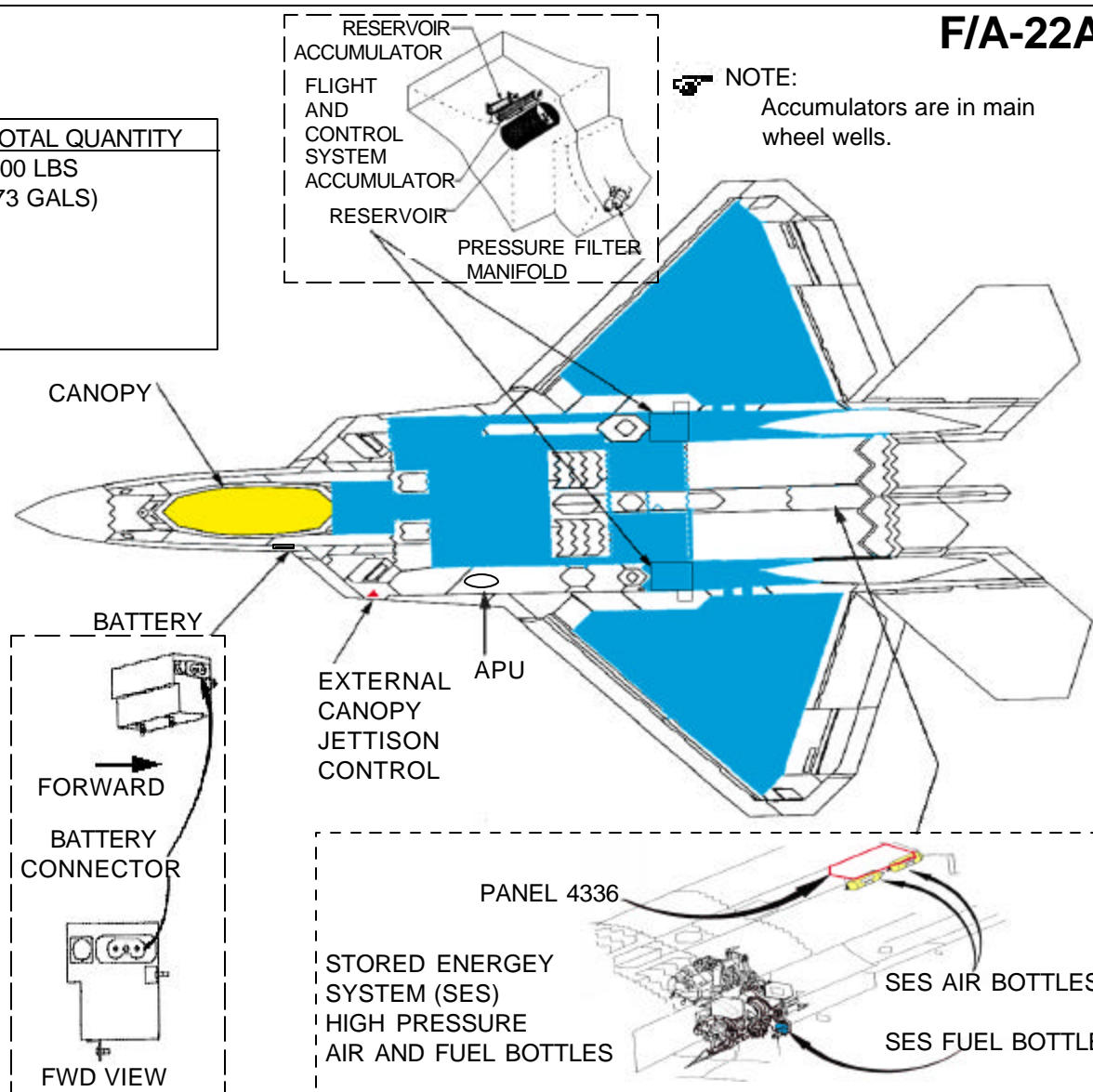
Personnel should prevent the puncturing of the fuel cells. The internal cells are divided into a forward and an aft system with all cells fabricated from an integral-type construction. The three feed cells are in the forward fuselage, and the left and right cells are located in the aft left and right fuselage, respectively. The remaining five cells are transfer cells that utilize gravity feed, ejector pumps, and electrical pumps to transfer fuel to the feed cells. These cells are the two wing cells in the forward mid fuselage and mid fuselage. All the internal cells are pressurized through the vent and pressurization valve which is connected to the On-Board Inert Gas Generating System (OBIGGS).

### NOTE:

The battery and Charger/Controller System (BCCS) consists of the battery and a charger/controller unit supplying 28VDC to aircraft systems. The aircraft battery is located behind the Left Avionics Bay Door # 4135.

### BATTERY DISCONNECT

- The battery switch must be positioned OFF, if possible.
- Disconnect battery terminals at battery disconnect at right side aft of battery.
- If cutting is necessary, cut through thermoplastic door # 4135 to access the battery as required, then disconnect.



### NOTE:

The Stored Energy System (SES) provides fuel and high pressure air to the Turbine Power Module (TPM), mounted to the APU gearbox, to start the APU and provide a self-start capability to the aircraft's engines. High pressure air from the SES air bottles is also delivered to the APU door actuation system for door operation, and to the landing gear system for emergency gear extension. Care should be taken to avoid puncturing the fuel filled bottle.

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# AIRCRAFT HAZARDS-Continued

# F/A-22A

## FUEL TANK LOCATIONS AND QUANTITIES

### NOTE:

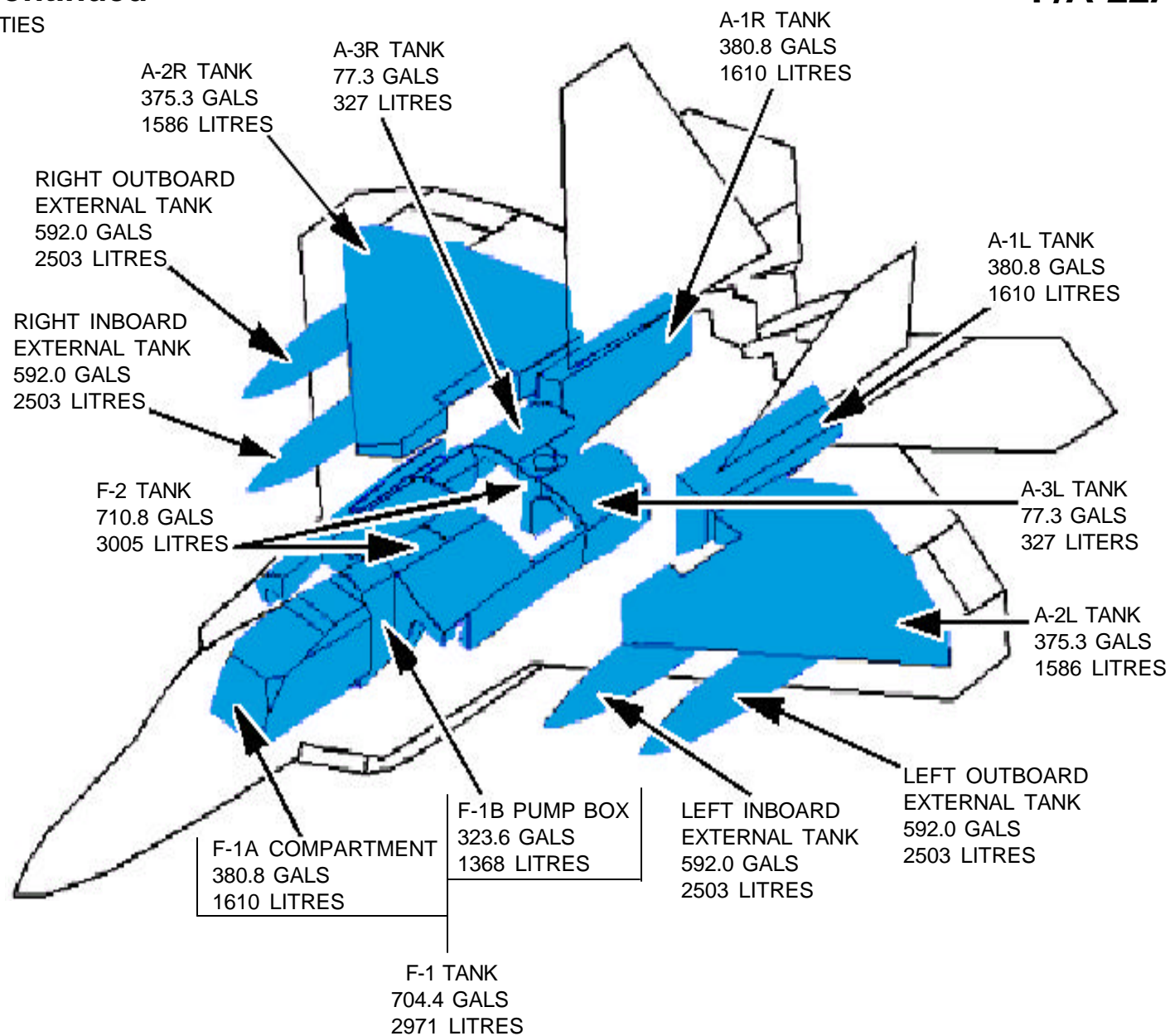
All quantities in US gallons and litres.

### NOTE:

Total fuel: 5,450 gallons, 23,043 litres

Fuel weight: 36,515 lbs.

Fuel type: JP-8.





# AIRFRAME MATERIALS

## MATERIALS DISTRIBUTION

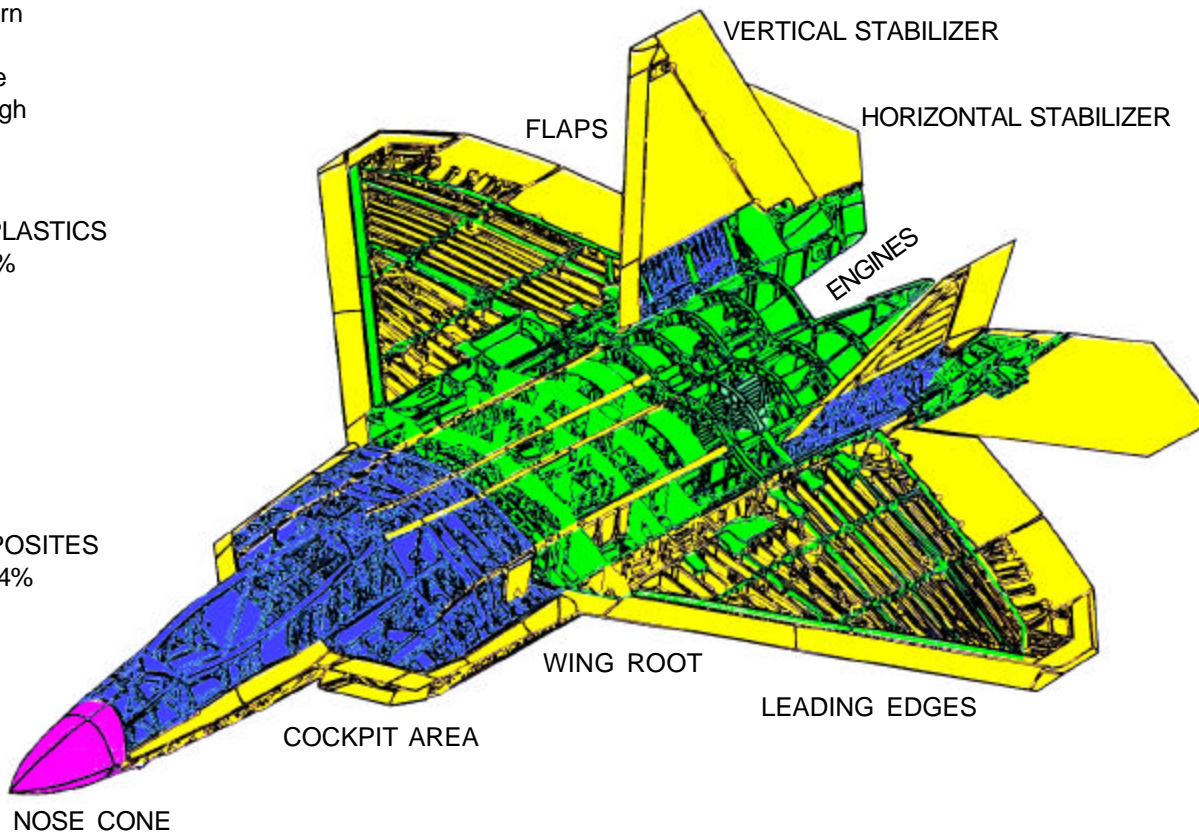
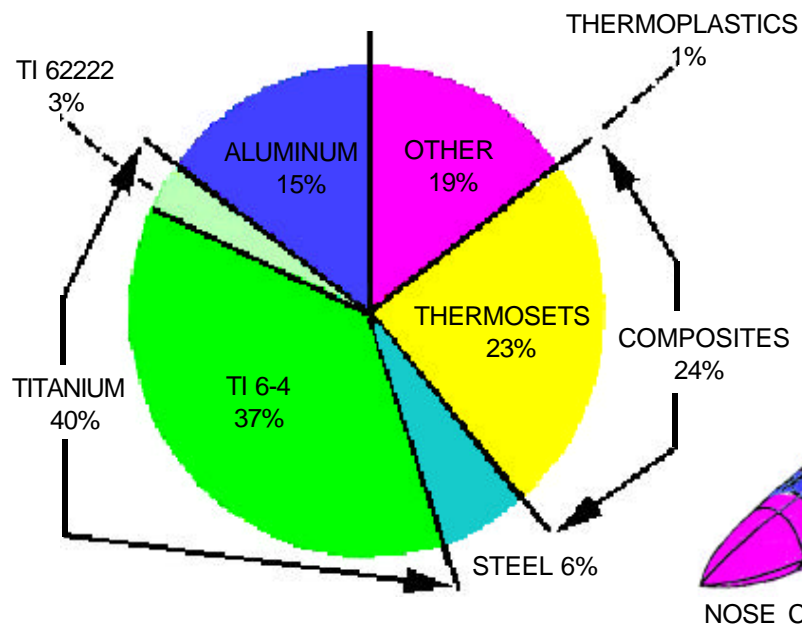
### NOTE:

Organic composite structural laminates are made up of stacks of oriented thin lamina that consolidated under heat and pressure. Each lamina consists of a layer of high-strength, high-modulus, low-density reinforcing fibers embedded in a resin matrix. Fibers typically are materials such as carbon, boron, Kevlar 49, or fiberglass. The matrix can be either a thermosetting material such as epoxy, bismaleimide, or polyimide, or a thermoplastic material. If the matrix is thermosetting, a solid material is formed that cannot be reprocessed. Thermoplastic materials, however, can be reshaped by reheating and reforming.

### WARNING

Self Contained Breathing Apparatus should always be worn during firefighting, rescue, and when removing bunkers to prevent respiratory complications from inhaling composite fibers and dust. Serious health problems will result through failure to observe this warning.

MATERIALS	MATERIALS LOCATION
OTHER	NOSE CONE
ALUMINUM	AFT OF NOSE CONE TO WING ROOTS AND BASE OF VERTICAL STABILIZERS
ALUMINUM BERYLLIUM (ALBEMET)	ALL OVER ACFT, MOSTLY NOSE AND SURROUNDS AVIONIC RACKS (EXTREME RESPIRATORY HAZARD)
ALUMINUM COPPER	AIRCRAFT BUSHINGS
TI 6222 (TITANIUM)	WING AND BODY SPARS, ENGINES
TI 6-4 (TITANIUM)	AND LOWER BASE OF STABILIZERS
STEEL	NOSE AND LANDING GEAR
THERMOPLASTICS (COMPOSITES) & THERMOSETS (COMPOSITES)	LEADING EDGES, FLAPS, HORIZONTAL STABILIZERS, WING, & BODY SPARS
CuBe (COPPER BERYLLIUM)	AIRCRAFT BUSHINGS



F/A-22A

**SPECIAL TOOLS/EQUIPMENT**  
 Fire Drill II Power Rescue Saw  
 2-10' Ladders 3/8" Drive Hand  
 Electric Power Drill | Rubber Mallet

# AIRCRAFT ENTRY

## NOTE:

The canopy actuator has an internal mechanism allowing canopy support at any height.

## WARNING

There is a canopy secondary lock, manually set by the pilot preventing any electrical or manual operation of the canopy. If pilot is incapacitated and secondary lock is in LOCKED position, there are only two options for entry: cut-in or canopy jettison. In order to effect entry ensure secondary lock is UNLOCKED.

## 1. NORMAL ENTRY - WITH POWER

- Actuate the canopy up/hold/down switch, located in the nose wheel well on the right sidewall fairing, to the UP position to the desired height.
- Internal canopy up/stop/down switch is located on the right console panel under the right canopy sill as well as the canopy manual unlock handle.

## 2. NORMAL ENTRY - NO POWER

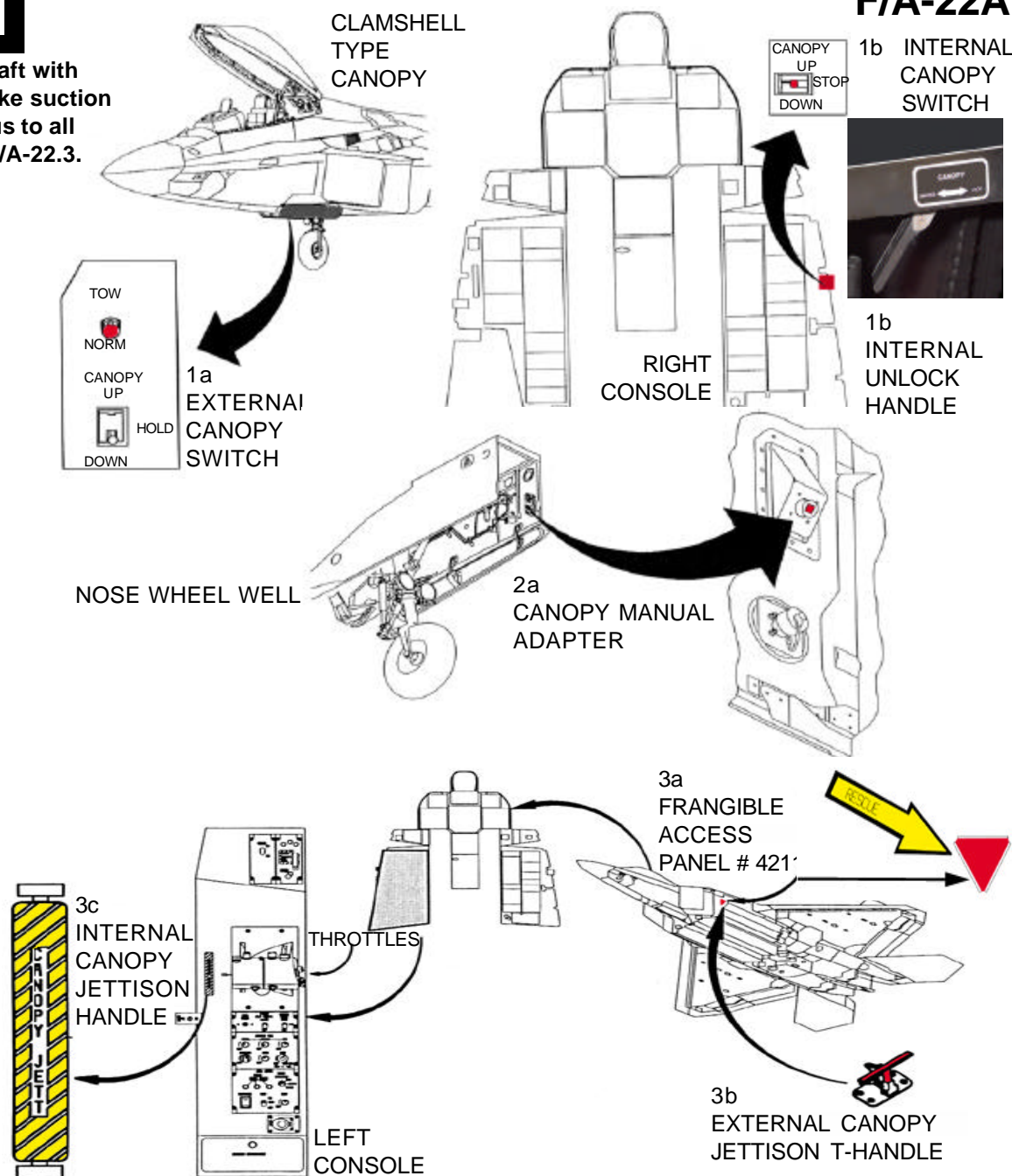
- Rotate the canopy manual adapter, located in the nose wheel well on the forward left sidewall, with a electric power drill or hand tool counterclockwise (3200 to 3600 revolutions) to the full open position.

## 3. EMERGENCY ENTRY

- Proceed to Frangible Access Panel #4211, located on left side just aft of left inlet forward from the wing leading edge.
- Fracture the panel with a rubber mallet, then actuate the external jettison handle by pulling the ring out to jettison the canopy. Cable length is 30". Personnel should be aware of impact area. See page F/A-22.6 for canopy impact area.
- The internal canopy jettison handle is located on the left console, left of the throttles, under the left canopy sill.

## WARNING

**Do not approach aircraft with engines running. Intake suction is extremely dangerous to all personnel. See page F/A-22.3.**



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# AIRCRAFT ENTRY-Continued

## WARNING

If pilot is incapacitated and canopy will not open electrically, then ensure the pilot is clear of the canopy frame prior to jettisoning the canopy. Failure to comply may add additional injury to the pilot. If pilot is not clear of the canopy frame, then apply power saw to transparency per CUT-IN procedures.

### NOTE:

If canopy is jammed after normal landing, do not jettison canopy. Go to 4a.

### 4. CUT-IN

- a. Cut along the canopy frame on all sides with the power rescue saw with carbide tip to remove the canopy glass.

### 5. CANOPY RAIL OR SILL CAMS

### NOTE:

The canopy rails or sills have been modified to eliminate "canopy howling", an in-flight phenomenon. Canopy skirt clips engage the cams during closing to prevent howl.

## WARNING

Footing on the canopy rail or sill must be firmly established prior to lifting of pilot so the extraction process is stable. Cams present a potential harness snag hazard during emergency ground egress and/or rescue of an incapacitated pilot. If footing is lost, pilot and rescuer may fall from aircraft causing injury or death to one or both personnel.

- a. 0.75" high cams are added along the outer edge of both left and right canopy rails or sills.
- b. The cams are installed on A/C 4003 and DIOT&E aircraft. Flight testing on A/C 4003 continues to progress.
- c. Final number of cams established at 12 per side.
- d. LM-Aero Marietta engineering review of cam installation indicates that the cams should not impede ground rescue access to an incapacitated aircrew, or cause any unstable footing on the canopy rails or sills for rescuers attempting to brace on the rails or sills to dead lift a pilot. Cams may add to traction of rescuer's boots. (Rescue crews are asked to discuss these issues and provide feedback.)
- e. Aircraft 4012 and up will incorporate a continuous height sill bracket.



CANOPY RAIL OR SILL



5a  
CAM BLOCK

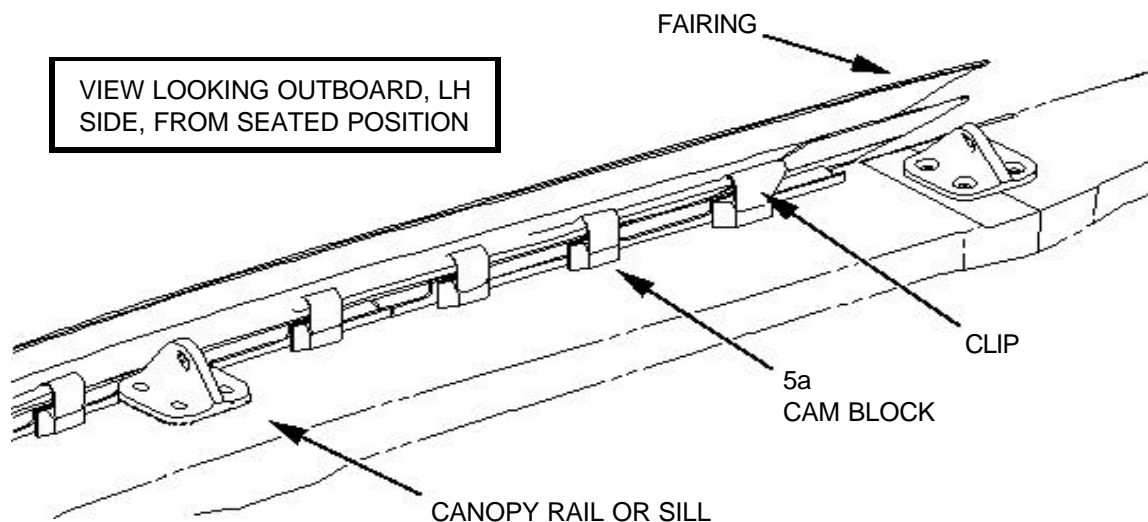


LEFT SIDE LOOKING AFT



LEFT SIDE LOOKING FWD

VIEW LOOKING OUTBOARD, LH  
SIDE, FROM SEATED POSITION



F/A-22A



# MAIN FUEL SHUT-OFF ACCESS

F/A-22A

## 1. MAIN FUEL SHUT-OFF ACCESS

### NOTE:

Maintenance access for the main fuel shut off valve actuators are normally under panels # 4536 and 4576 on the lower sides of the aircraft. The valves are installed in the fuel cells, but the Valve Actuators and Manual Shutoff Handles are connected to the valves utilizing a linkage assembly. All illustrations are bottom views. **Use left engine shutdown for emergencies.**

### NOTE:

Use this method only, if access to the cockpit is impossible. Bottom MFSOVs #1 and #2 can be drilled or penetrated.

### WARNING

Top and side of MFSOVs #1 and #2 should not be drilled or penetrated. These panels have fuel lines and avionics instrumentation wiring underneath. Drilling and penetrating should be done from the bottom only.

### WARNING

Cutting through wrong area may damage the MFSOV handle and prevent the use of the MFSOV.

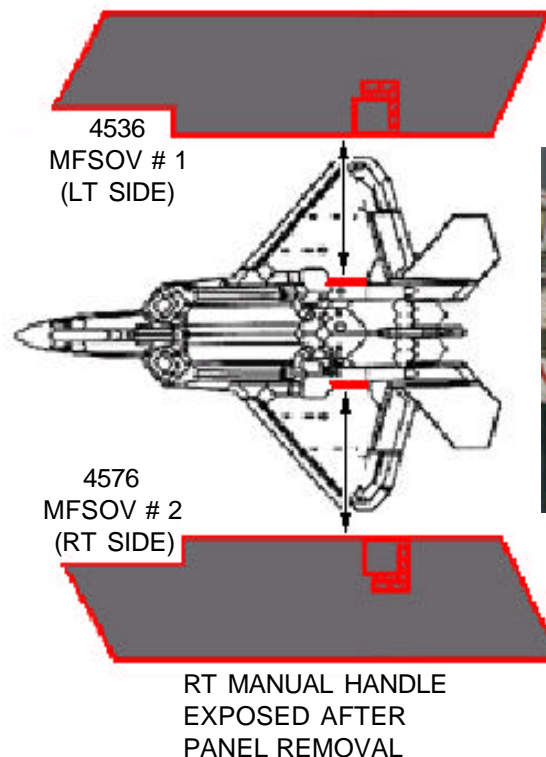
- Remove or break through access panels at fourth lower screw from right on left panel and left on right panel. (Panel coating may need to be removed in order to locate the fourth lower screw. Each panel consists of 35 #20 torque tip screws.)
- Remove the MFSOV electrical connector or cut the connector wires prior to manually actuating the MFSOV red manual lever.

### NOTE:

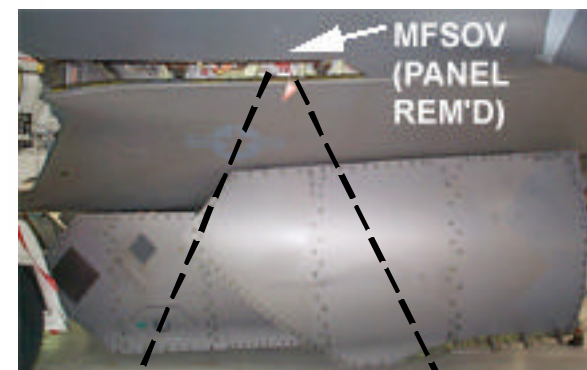
The aircraft will continue to supply power to actuate the MFSOV to the position commanded by the Fire Switch/Light in the cockpit until power is terminated.

- Manually position the valves to close by positioning the Flapper Type Handles Full DOWN. Full UP is open. Depending on the RPM of the engine selected for shutdown, spool downtime can be 14 to 29 seconds.

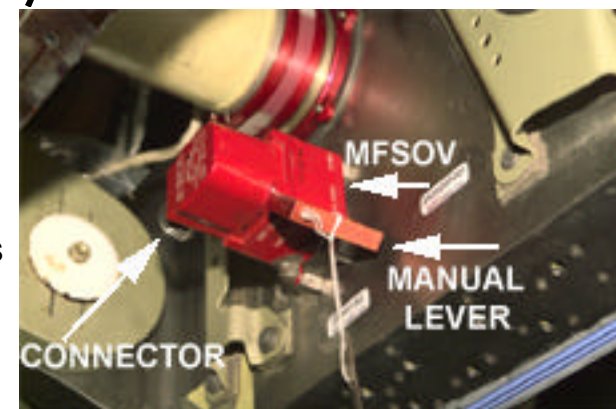
LT MANUAL HANDLE  
EXPOSED AFTER  
PANEL REMOVAL



1a  
L/H MFSOV PANEL OPENING  
(IF SCREWS ARE REMOVED)



1b  
MFSOV  
COMPONENTS  
(L/H MFSOV  
VIEW)





# APU/ENGINE SHUTDOWN

## 1. APU SHUTDOWN

### NOTE:

There are five (5) ways to shutdown the APU.

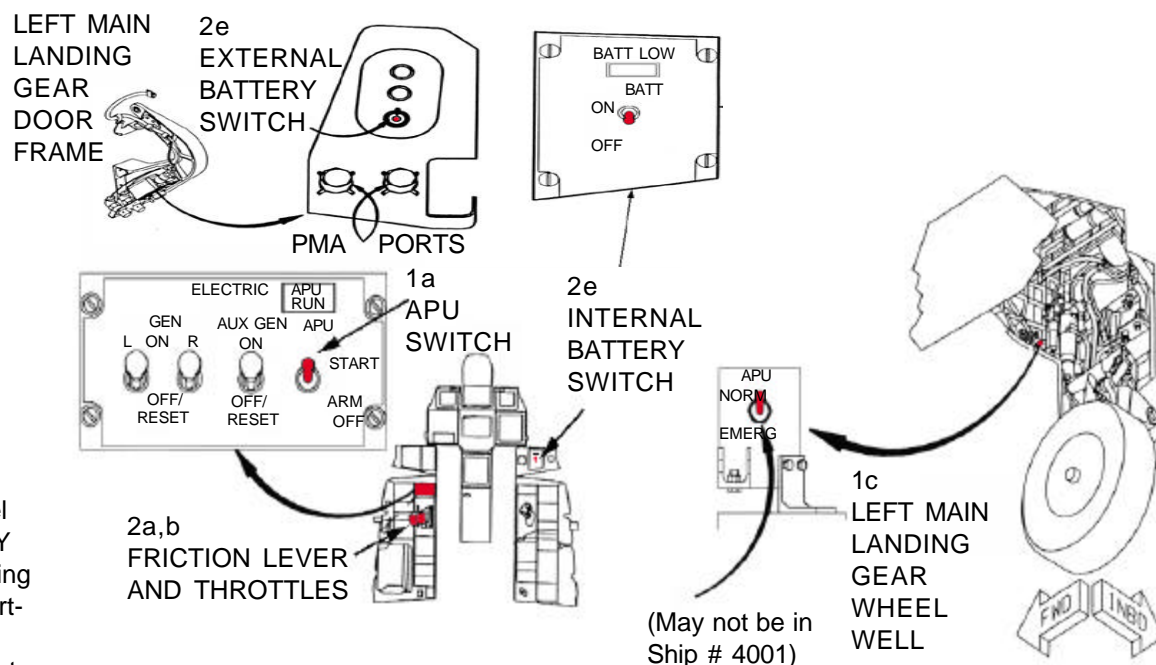
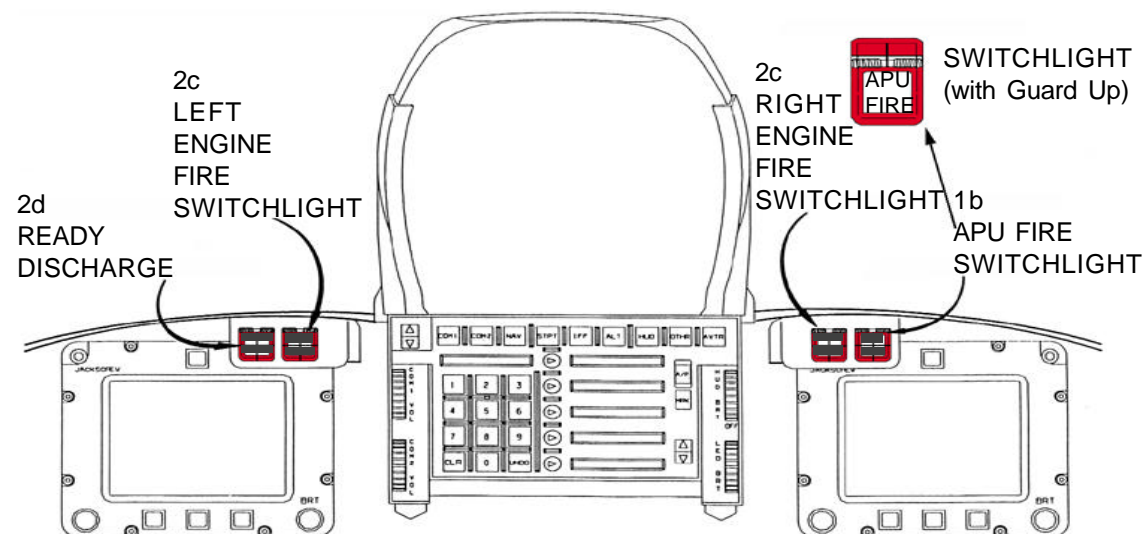
- (1) Position the APU switch to OFF.
- (2) Position the APU Emergency Shutdown switch in the left wheel well to EMER OFF.
- (3) Flood the APU inlet with extinguishing agent.
- (4) Command the APU to shutdown using the PMA.
- (5) Depress the APU FIRE Switchlight.

- a. Place the APU switch, located on the Electric Panel left console forward of throttles, to OFF.
- b. The APU FIRE Switchlight, located on the right glare-shield eyebrow, illuminates when a fire in the APU Compartment has been detected. Depressing the switchlight, on the ground, will shutdown the APU.
- c. The Emergency Shutdown Switch, located on the forward inboard side of the left main landing gear wheel well allows ground personnel to shutdown the APU during an emergency situation.

## 2. ENGINE SHUTDOWN

- a. Pull the friction lever, located left of left engine throttle, aft, to release throttle friction.
- b. Place the engine throttles, located on the left console, aft to lift over gate and continue aft to OFF.
- c. Depress the ENG FIRE warning switchlight, located on forward instrument panel, if illuminated. This action shuts off fuel, electrical power, ventilation, and air to the affected engine and arms the fire suppression system.
- d. If fire light remains illuminated: When the fire extinguisher is ready to discharge the extinguishing agent, the READY/DISCH switchlight, located on the forward instrument panel illuminates. When the switchlight is depressed, the READY light goes off and the DISCH switchlight illuminates indicating that the halon has been discharged to the selected compartment.
- e. Position battery switch, located on right corner panel, down to OFF. Another battery switch is located on the left main landing gear door frame above the PMA ports for external battery shutoff.

## APU/ENGINE FIRE SWITCHLIGHTS



## APU SHUTDOWN CONTROLS

F/A-22A

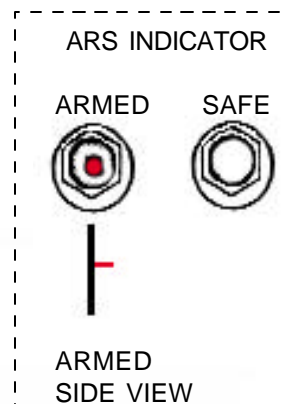
# SAFETYING EJECTION SYSTEM AND AIRCREW EXTRACTION

F/A-22A

## 1. NORMAL SAFETYING OF ACES III EJECTION SEAT

### WARNING

A Seat Armed Indicator located on the lower right side of the seat can indicate WHITE for OK and RED for SEAT ARMED. This indicates that the Advanced Recovery Sequencer (ARS) battery condition is serviceable or expended. If expended, the white sealant will be punctured by a protruding red pin. If this is a recent condition, it will take two hours for the seat to be considered safe to work around or remove. Electrical battery power is required to energize the recovery sequencer circuits for the numerous explosives on the seat. Use extreme caution and judgement in this case. If time permits, call the local Egress Shop before proceeding. If emergency exists and time does not allow inspection by the Egress Shop, sever all exposed electrical leads



### NOTE:

Do not touch indicator sealant when checking condition. Frequent touching wears off sealant exposing tip of red pin indicating a false ARMED ARS condition.

### NOTE:

The F/A-22 employs the ACES III Ejection Seat, structurally similar to the F-16 seat version. Sub system upgrades from the ACES II technology are incorporated, but does not affect the safing of the seat. Pitot tubes are stowed to prevent grasping while entering or egressing the cockpit.

### NOTE:

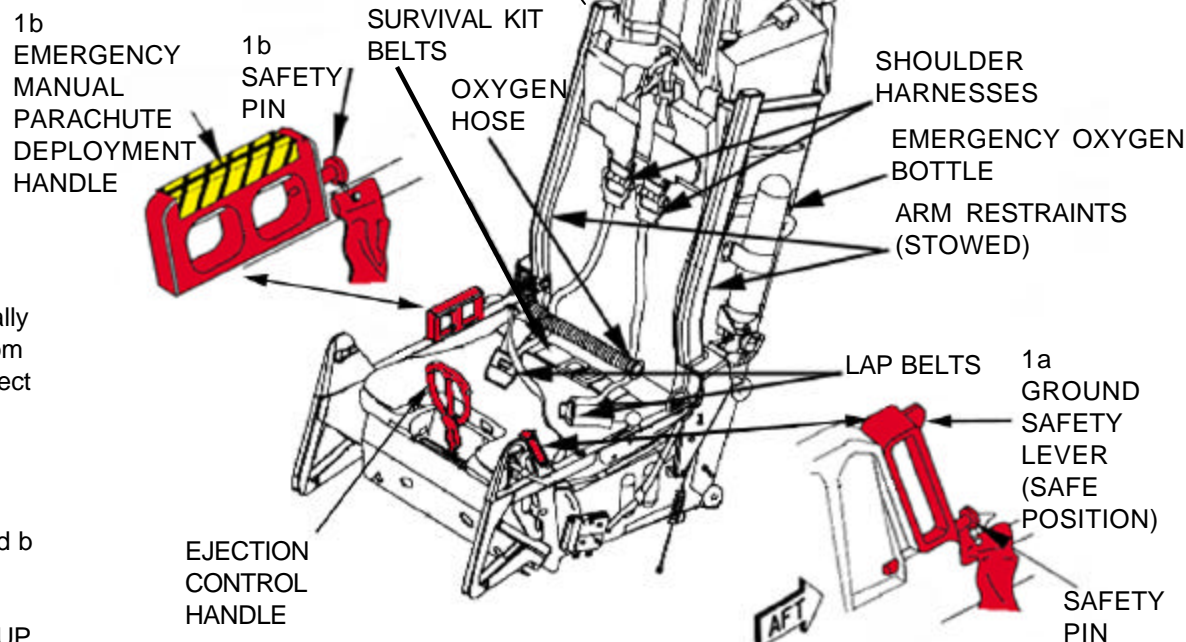
For rescue and extraction, the safety pins for steps a and b should be separate to prevent entanglement.

- a. Rotate Ground Safety Lever, located on left side of seat, UP and FORWARD, and install safety pin in lower part of lever after rotation facing forward.

### NOTE:

The Ground Safety Lever mechanically safes the Ejection Control Handle. There is no safety pin for this handle.

- b. Install safety pin in the Emergency Manual Parachute Deployment Handle aft of handle facing forward.



# SAFETYING EJECTION SYSTEM AND AIRCREW EXTRACTION-Continued

## NOTE:

The Emergency Manual Parachute Deployment Handle can not be pulled upward. For obvious reasons, this handle **can not** be used in the process for extracting the pilot from the seat.

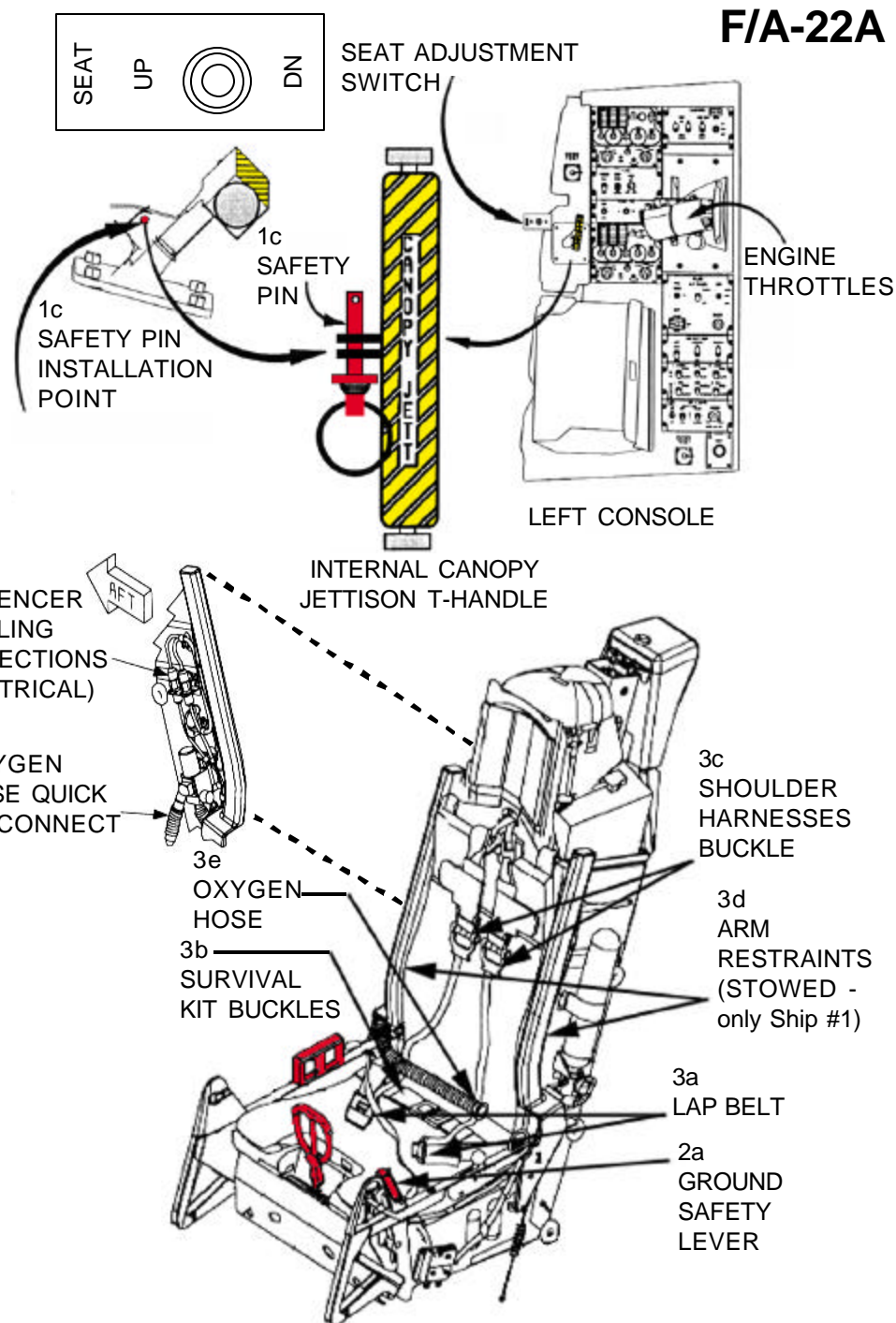
- c. Install safety pin in the Internal Canopy Jettison T-Handle located on the outboard left console, left of the engine throttles.

## 2. EMERGENCY SAFETYING EJECTION SEAT

- a. Rotate Ground Safety Lever, located on left side of seat, UP and FORWARD.
- b. Install safety pin in lower part of lever after rotation facing forward.

## 3. AIRCREW EXTRACTION

- a. Disconnect lap belt by lifting cover and pulling release bar.
- b. Disconnect left and right survival kit buckles by depressing PUSH TO RELEASE tab on each buckle.
- c. Disconnect left and right shoulder harness fittings/risers by squeezing latch and release bar simultaneously for each fitting.
- d. Remove left and right arm restraints from aircrew's shoulders.
- e. Disconnect normal and emergency oxygen hoses at suit disconnect.
- f. Disconnect communication lead at suit disconnect. See page F/A-22.19.
- g. Disconnect cooling garment hose at manifold. See page F/A-22.19.
- h. Disconnect G suit hose at suit quick disconnect. See page F/A-22.19.
- i. Lift crewmember from seat avoiding feet entanglement with Ejection Control Handle, safety pin streamers and leg restraints.



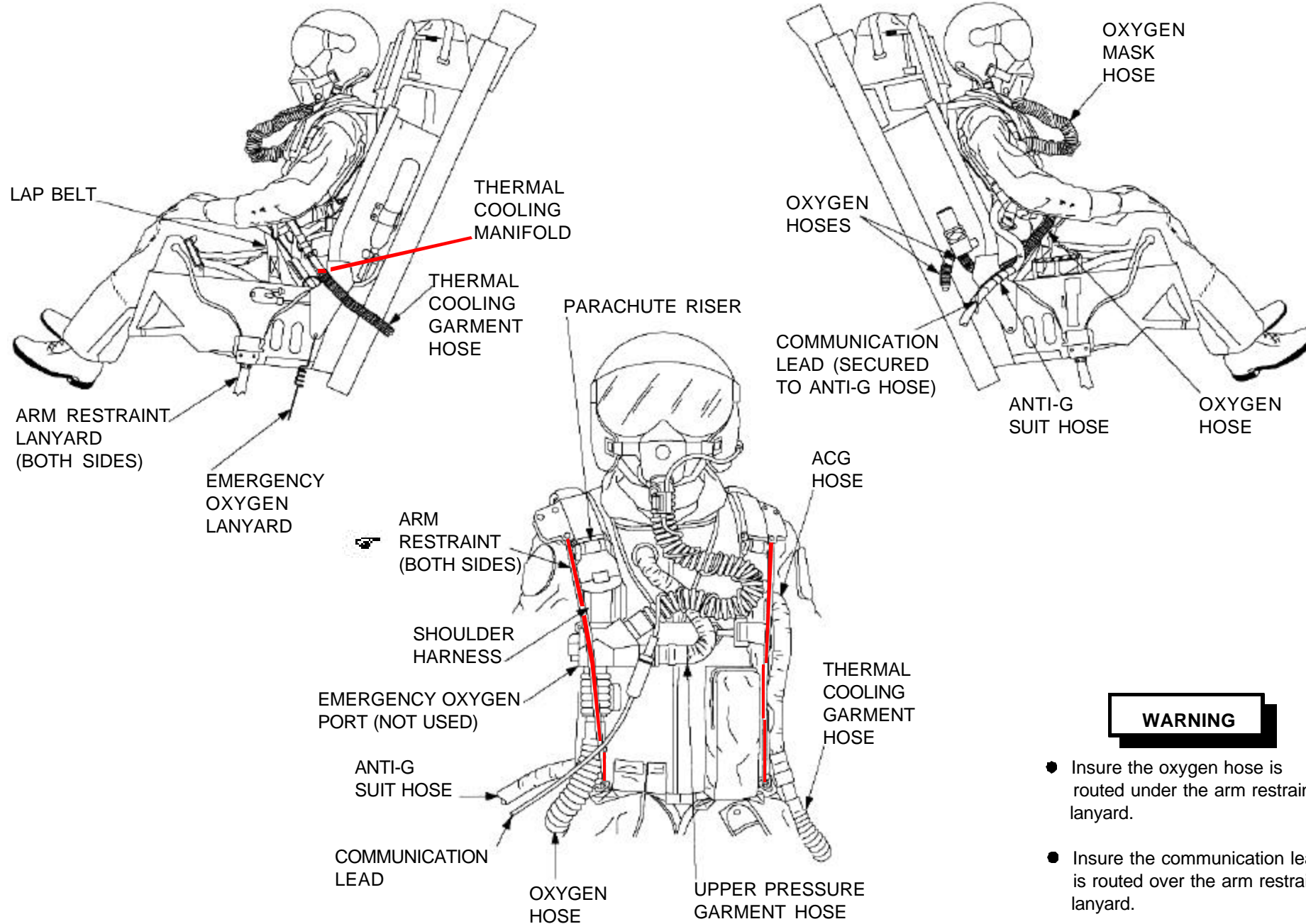
F/A-22A



# AIRCREW EXTRACTION-Continued

SEAT AND AIRCREW ORIENTATION

F/A-22A



## WARNING

- Insure the oxygen hose is routed under the arm restraint lanyard.
- Insure the communication lead is routed over the arm restraint lanyard.



# AIRCREW EGRESS

## 1. AIRCREW EGRESS

### NOTE:

This information is based on pilot self ground egress. Responders should be ready to receive pilot, if possible, as pilot will be immediately leaving the unpredictable incident area.

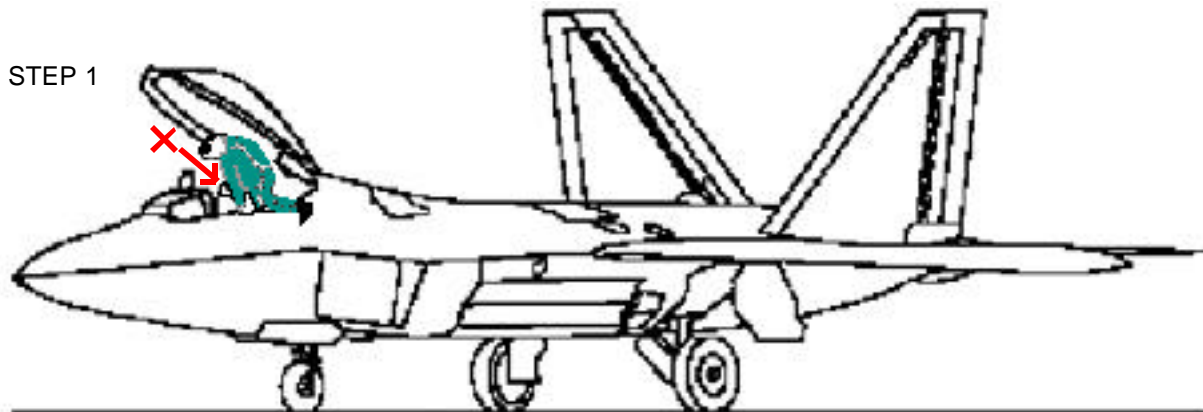
### WARNING

Do not use any part of the ACES II ejection seat as a hand held area while climbing out of aircraft, most notably the pitot tubes located at top of seat. Inadvertent actuation of ejection seat components could have devastating and deadly results. This also includes the canopy jettison handle on the left console.

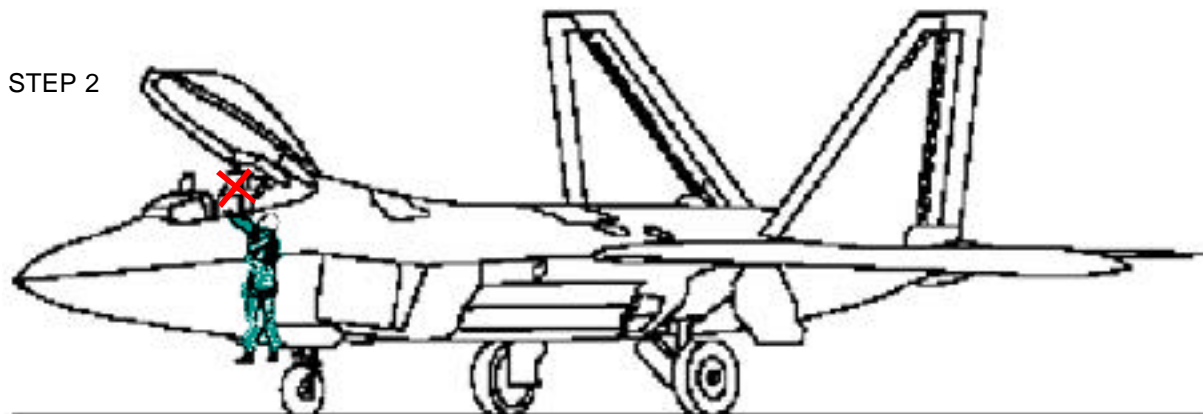
- a. STEP 1. Climb over least dangerous side of aircraft (i.e. no smoke, fire or running engine), grasping canopy rail or sill with both hands while lowering legs down side of aircraft. Watch for potential snagging of life support equipment while climbing over canopy rail or sill cams.
- b. STEP 2. Extend body, with both hands, while still holding onto canopy rail or sill.
- c. STEP 3. Release forward most hand from canopy rail or sill and rotate body to the facing away position from the engine intake. Release last hand from canopy rail or sill. Prepare to perform a Parachute Landing Fall upon hitting the ground.

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STEP 1



STEP 2



STEP 3

